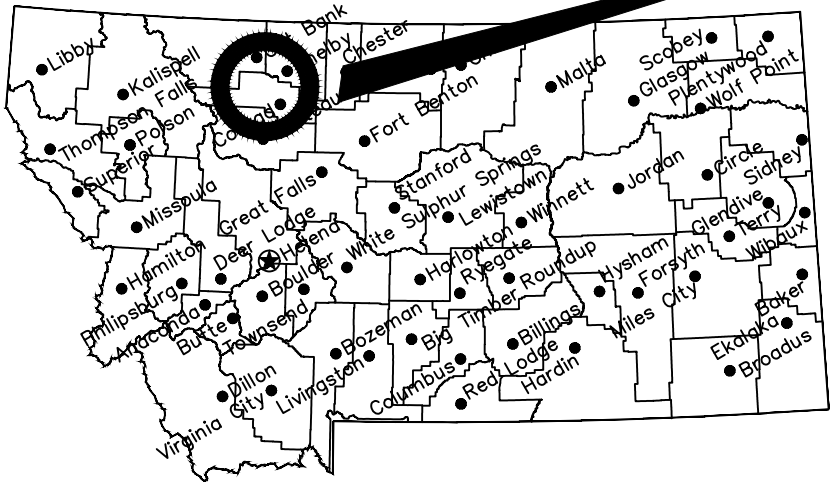


MONTANA FISH, WILDLIFE & PARKS

Marias River WMA Road Maintenance

Near Shelby, MT

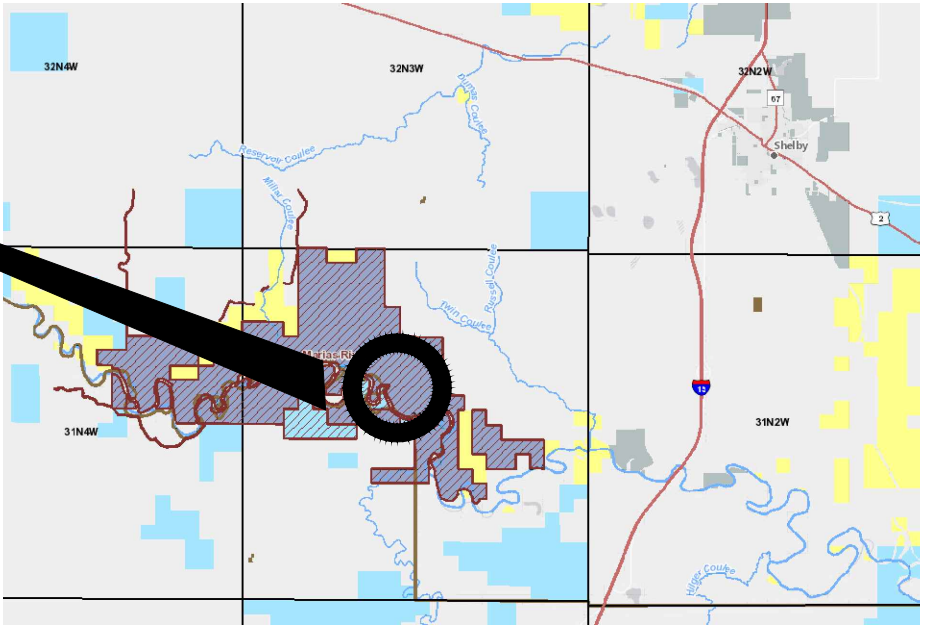
FWP # 7155330



Location Map

No Scale

**Project
Location**



Vicinity Map

No Scale



MONTANA FISH, WILDLIFE AND PARKS
DESIGN AND CONSTRUCTION

MAILING ADDRESS: PO BOX 200701
HELENA, MT 59620-0701
TEL 406.841.4000
FAX 406.841.4004
fwf.mt.gov/Doing Business/Design&Construction

PHYSICAL ADDRESS: 1522 9th AVENUE
HELENA, MT 59601

DRAWING INDEX

- | | |
|---|-------------------------------|
| 1 | Cover |
| 2 | Summary |
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| 6 | Embankment Protection Details |

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MONTANA FISH,
WILDLIFE & PARKS

Cover
Marias River WMA Road Maintenance

SHEET: 1 of 7

Estimated Quantities - Marias River Road Maintenance							
	LF			CY			SY
LOCATION	Shape Road	24" HDPE EMBANKMENT PROTECTOR	24" HDPE Culvert	Base Course Pit Run	Class II Rip Rap	Granular Bedding Material*	Non-Woven Geotextile*
0+00 to 42+19	4219			1094			
17+21			46		5	25	17
24+27		132			21		47
26+28					8		39
38+56			28		5	15	17
Total	4219	132	74	1094	39	39	120

NOTES:

* FOR INFORMATIONAL PURPOSES ONLY

- 1) THE CONTRACTOR IS REQUIRED TO NOTIFY AND COORDINATE ALL WORK WITH THE FWP PROJECT MANAGER.
- 2) SUBMITTALS ARE REQUIRED ON ALL MATERIALS USED IN THE PROJECT.
- 3) CONTRACTOR SHALL CLEAN-UP ALL DEBRIS FROM THE SITE TO THE SATISFACTION OF THE OWNER.
- 4) ALL WORK SHALL COMPLY WITH FEDERAL, STATE, AND LOCAL CODES. IF THERE IS A CONFLICT BETWEEN CODES, THE MORE STRINGENT WILL APPLY, UNLESS SPECIFICALLY AUTHORIZED BY THE OWNER.
- 5) ALL EXTRANEIOUS WORK/COSTS TO COMPLETE THE WORK SHALL BE INCLUDED AND CONSIDERED TO BE FULL PAYMENT AS PER THE COST PROPOSAL.
- 6) CONTRACTOR SHALL TAKE CARE TO NOT DAMAGE FWP PROPERTY. ANY EXTRANEIOUS DAMAGE CAUSED BY THE CONTRACTOR SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR TO THE SATISFACTION OF THE PROJECT MANAGER.
- 7) EQUIPMENT USED IN OR NEAR WATERS SHALL NOT LEAK FLUIDS. IT SHALL BE POWER WASHED BEFORE USE ON SITE AND EXAMINED BY THE ENGINEER.
- 8) THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES WITH THE CONSTRUCTION AREA.
- 9) PROVIDE ALL TEMPORARY SIGNING, PERSONNEL, AND TRAFFIC CONTROL DEVICES AS REQUIRED BY FEDERAL, STATE, AND LOCAL REGULATIONS.

J. Renenger6/24/2020

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MONTANA FISH,

WILDLIFE & PARKS

Summary

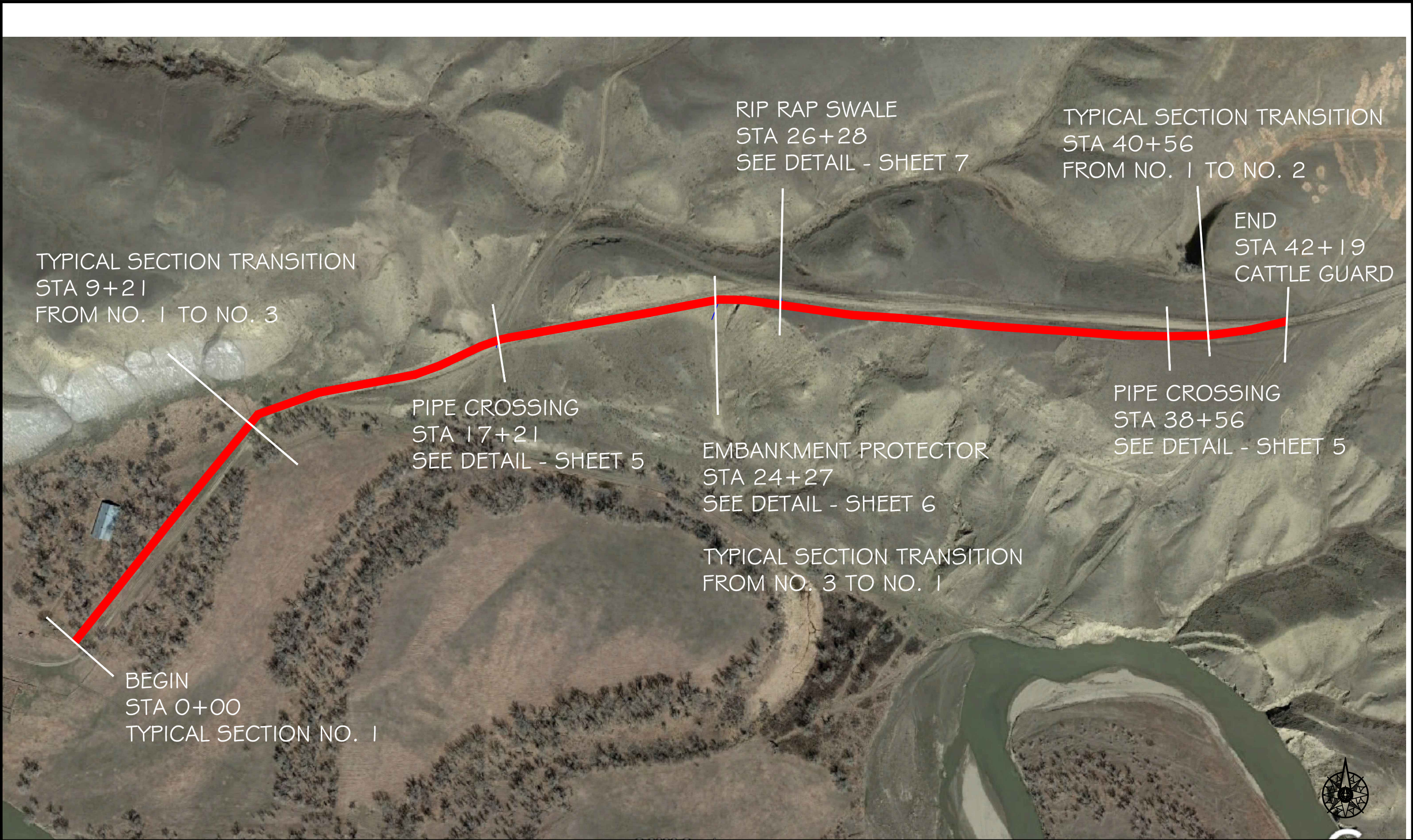
Marias River WMA Road Maintenance

SHEET:

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7



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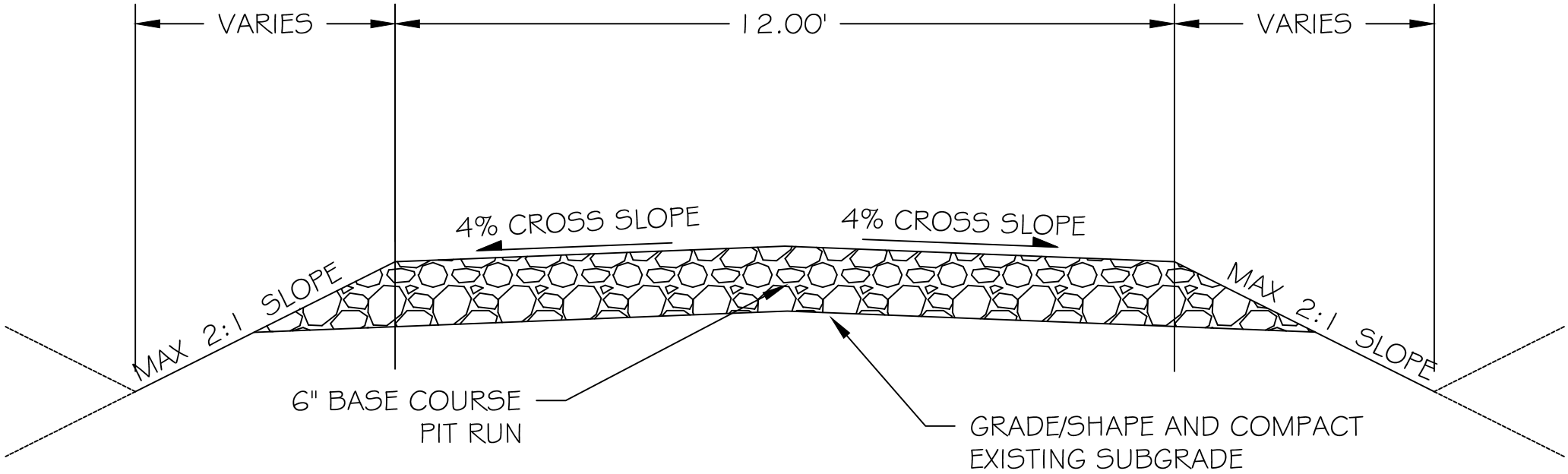
**MONTANA FISH,
WILDLIFE & PARKS**

Site Plan
Marias River WMA Road Maintenance

SHEET: 3
of 7

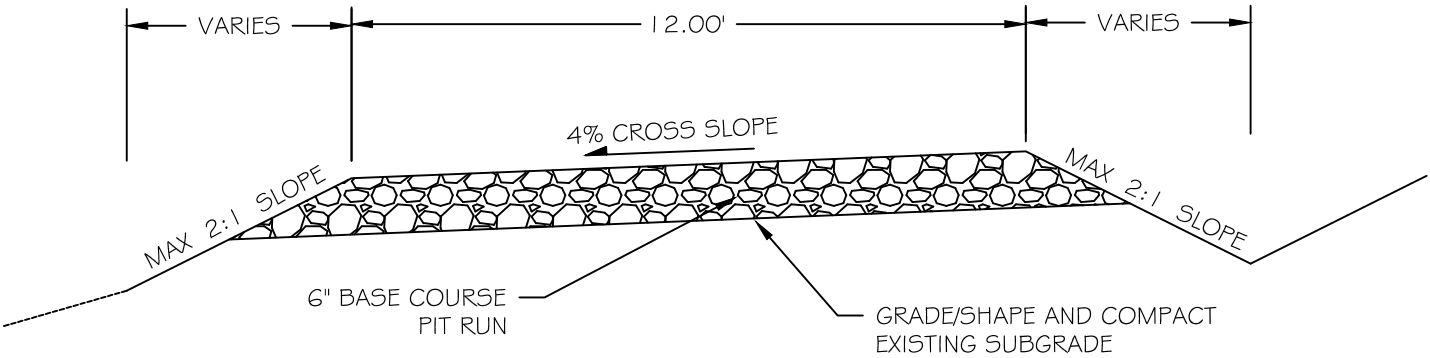
TYPICAL SECTION NO. 1

STA 0+00 TO 9+21
STA 24+27 TO 40+56



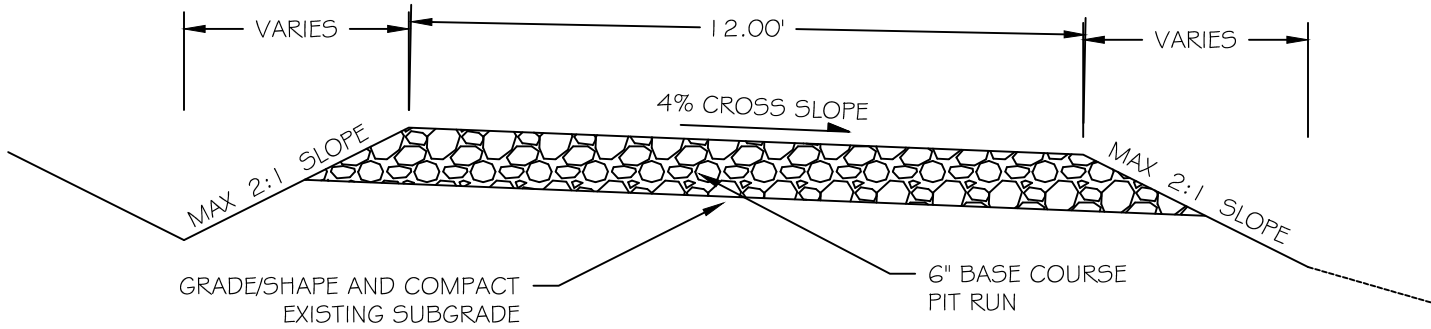
STA 40+56 TO 42+19

TYPICAL SECTION NO. 2 - DITCH RIGHT



STA 9+21 TO 24+27

TYPICAL SECTION NO. 3 - DITCH LEFT



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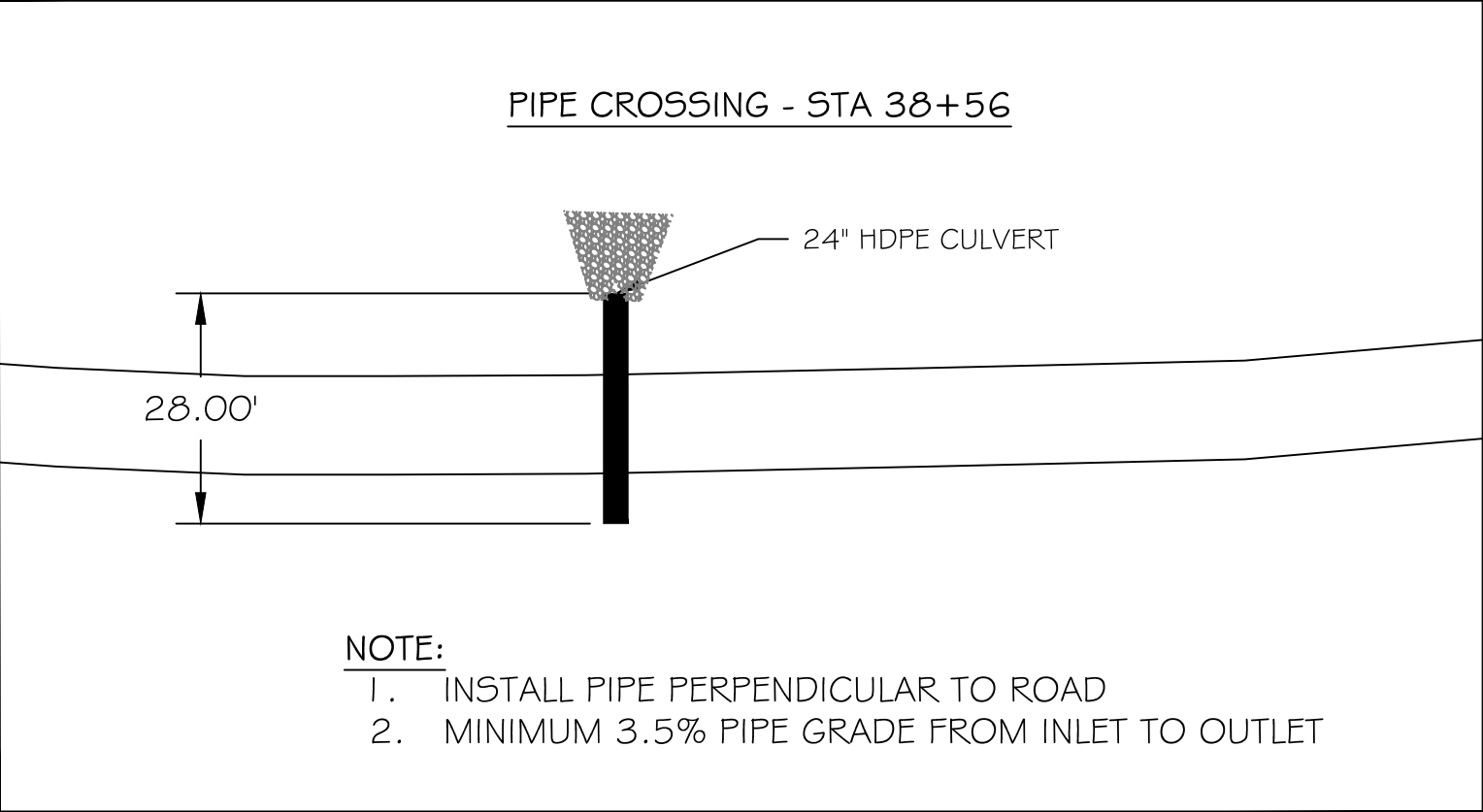
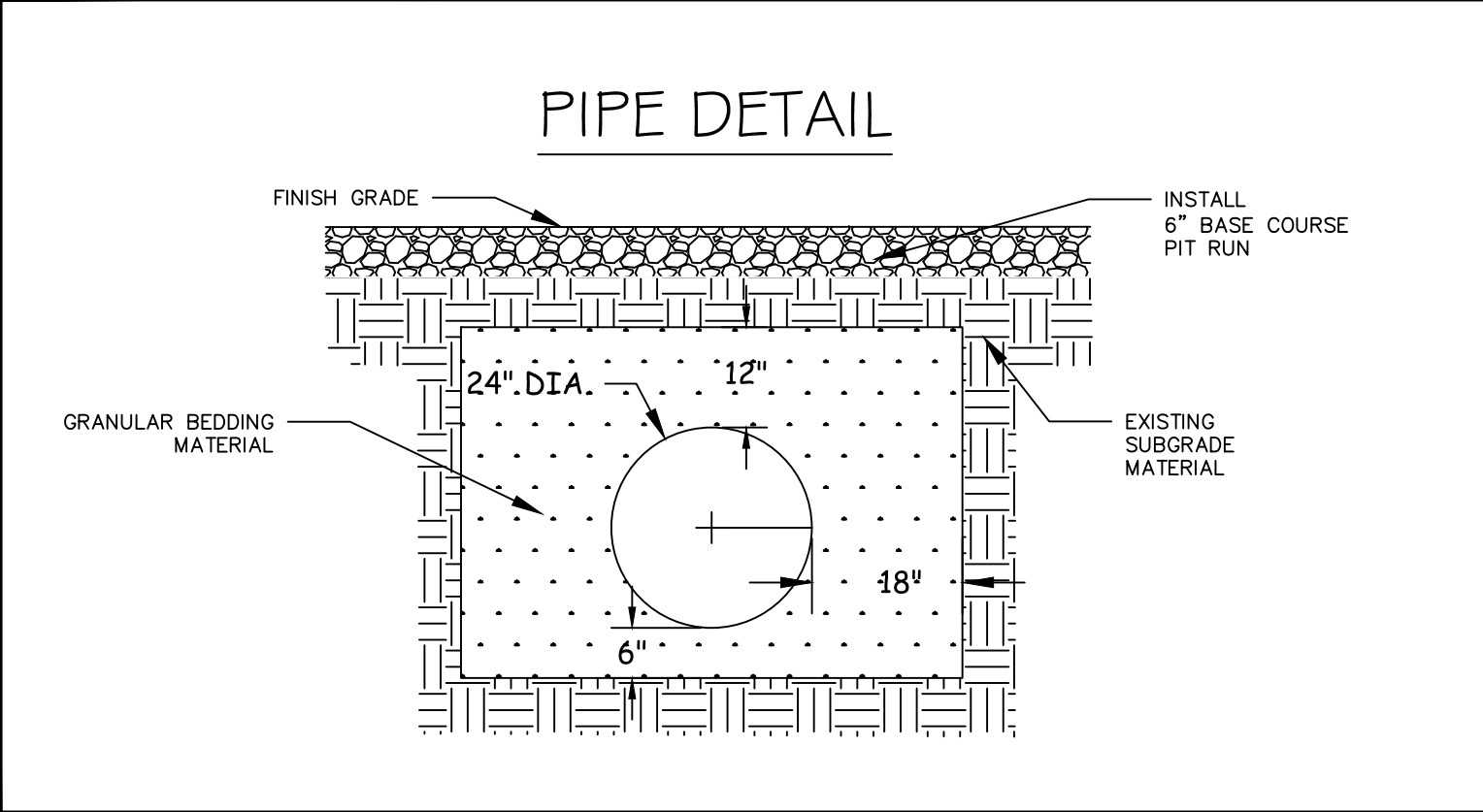
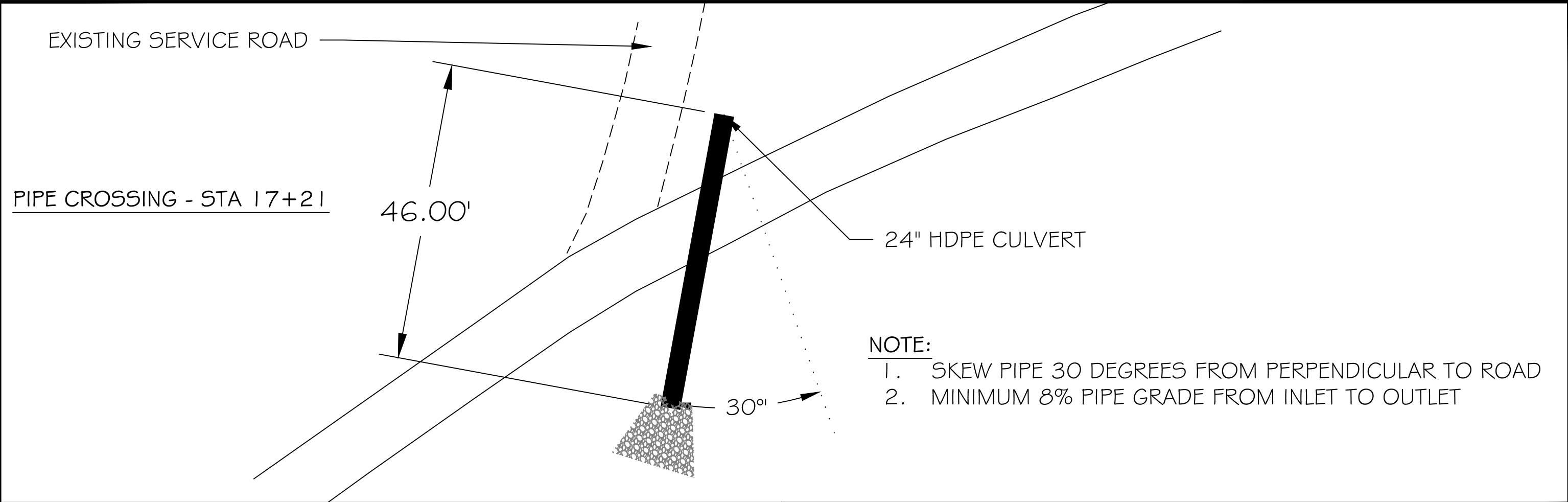
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**MONTANA FISH,
WILDLIFE & PARKS**

Typical Sections
Marias River WMA Road Maintenance

SHEET: 4
of 7



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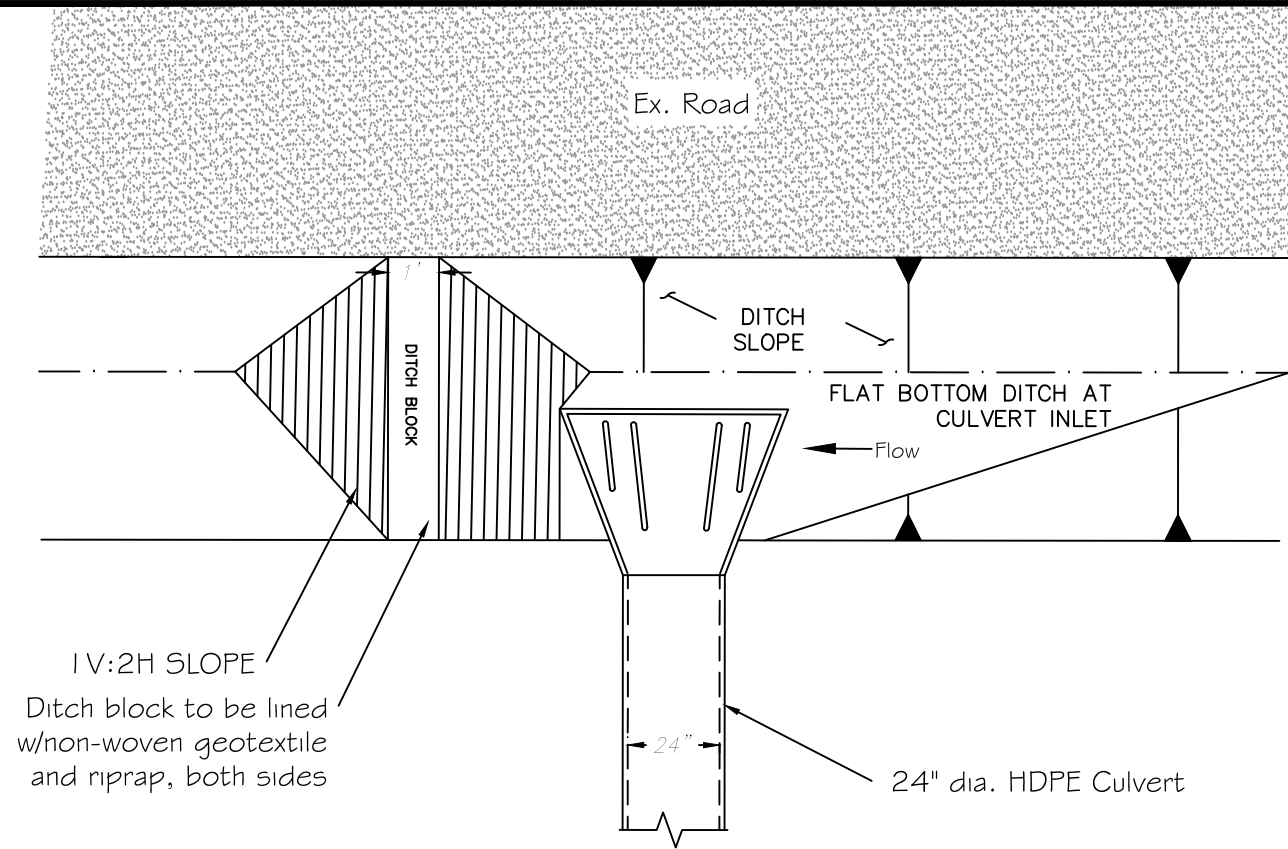
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**MONTANA FISH,
WILDLIFE & PARKS**

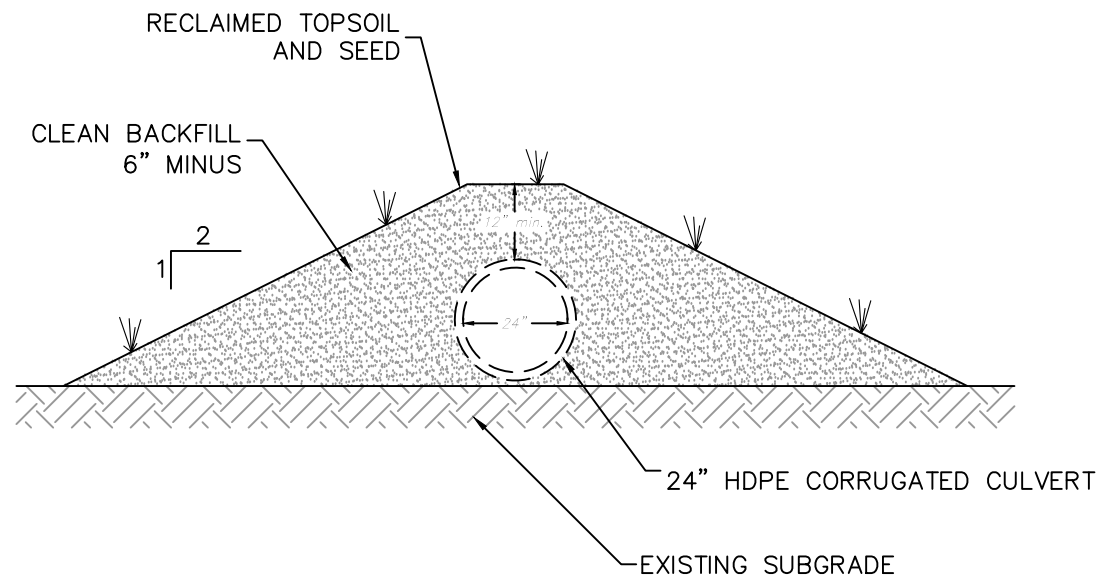
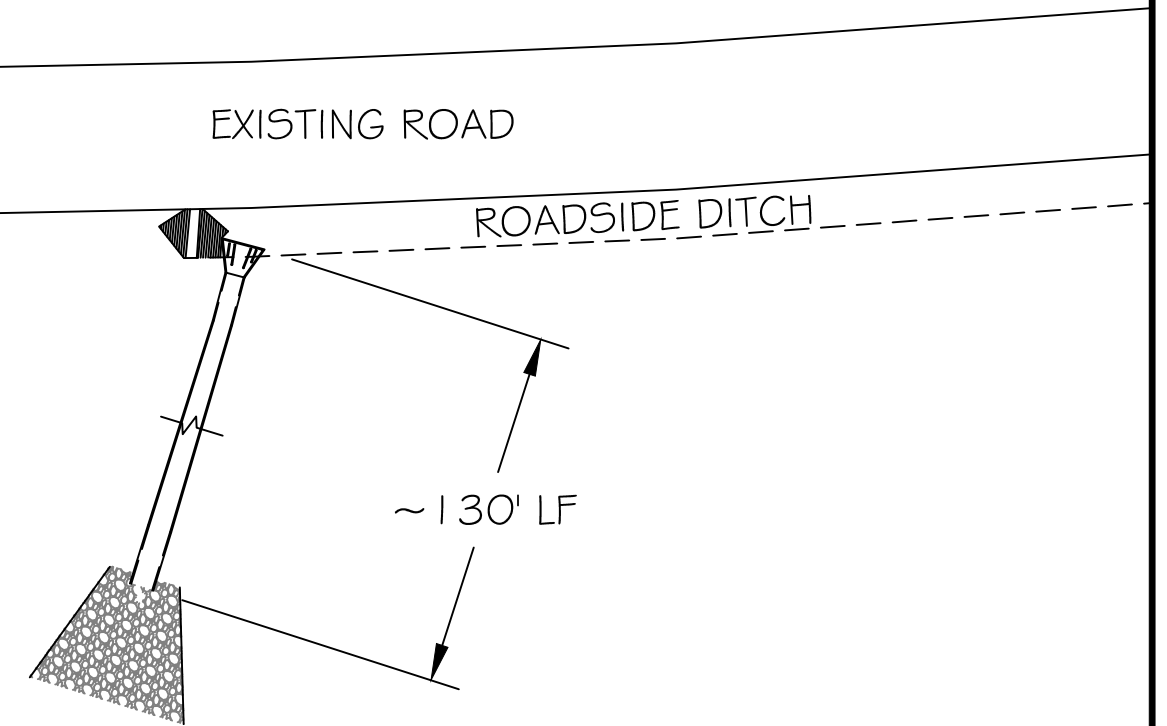
Pipe Details
Marias River WMA Road Maintenance

SHEET: 5 of 7



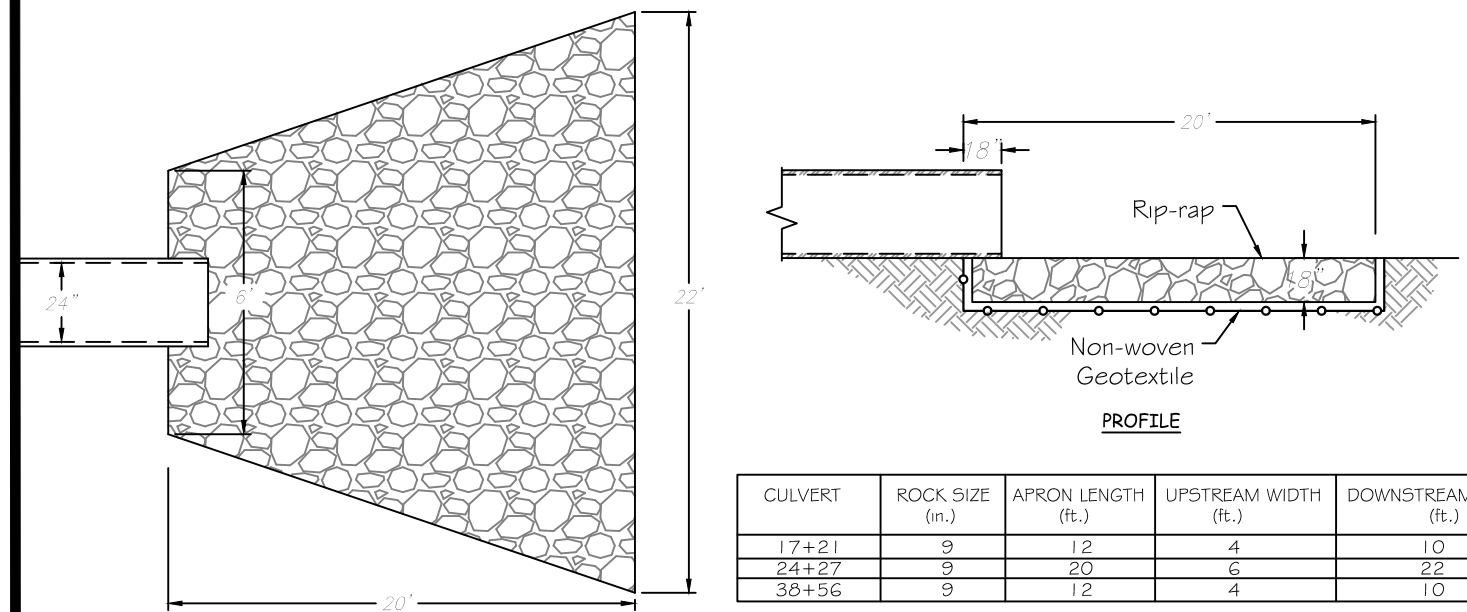
EMBANKMENT PROTECTOR INLET DETAIL

**STA 24+27
EMBANKMENT PROTECTOR**



HDPE EMBANKMENT PROTECTOR PIPE SECTION

Note: clean backfill material can be obtained from onsite borrow sources



CULVERT	ROCK SIZE (in.)	APRON LENGTH (ft.)	UPSTREAM WIDTH (ft.)	DOWNSTREAM WIDTH (ft.)
17+21	9	12	4	10
24+27	9	20	6	22
38+56	9	12	4	10

RIP RAP APRON DETAIL

NOTE:
1. INCLUDE RIP RAP APRON AT END OF ALL INSTALLED PIPES.

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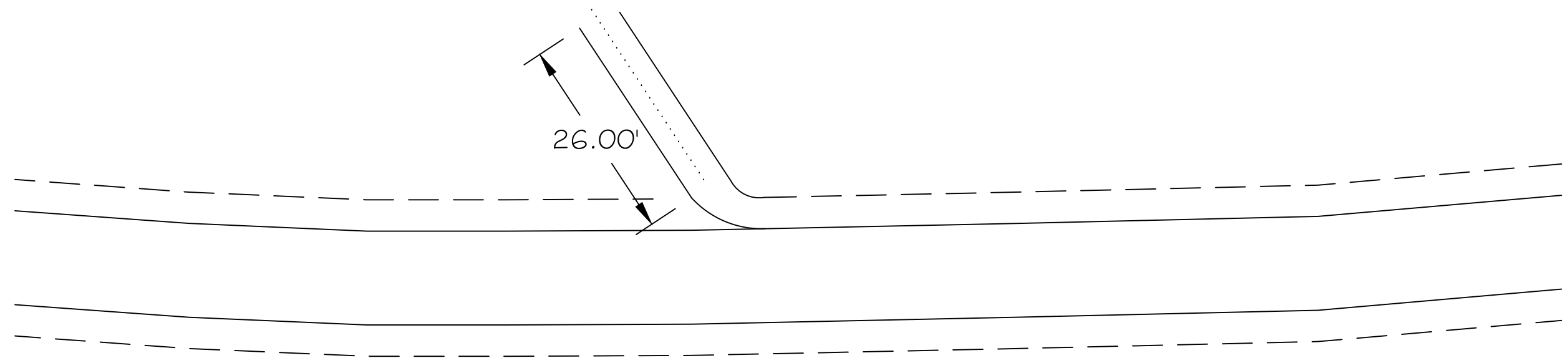


**MONTANA FISH,
WILDLIFE & PARKS**

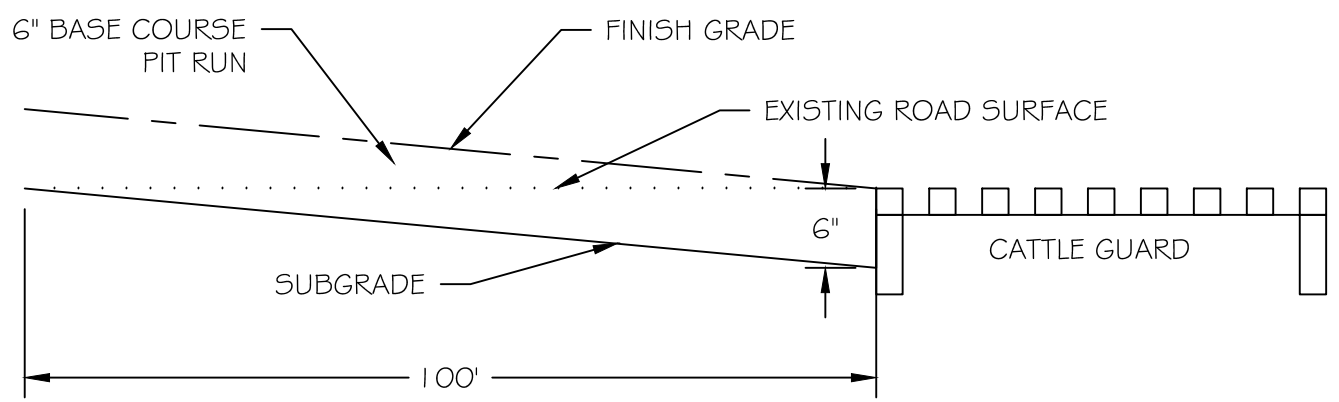
Embankment Protection Details
Marias River WMA Road Maintenance

SHEET: 6 of 7

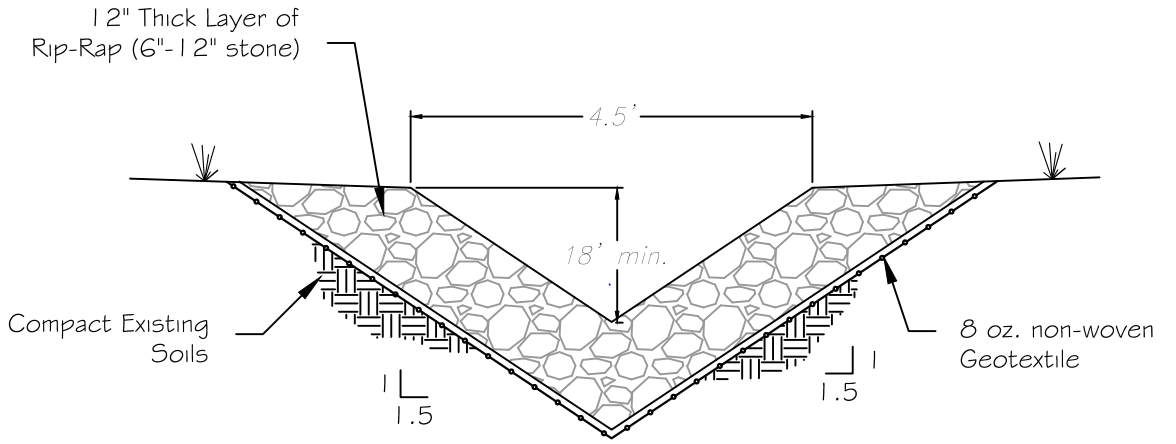
RIP RAP SWALE - STA 26+28



END STA 42+19



- NOTE:
- 1. TAPER SUBGRADE FOR 100' FOR TRANSITION.
 - 2. LEAVE CATTLE GUARD AT EXISTING ELEVATION.



RIP-RAP LINED SWALE

- Notes:
- 1. Rip-rap shall be Class II riprap, consisting of hard, durable, angular rock that is resistant to weathering and water action and free of organic or other unsuitable material. Rounded stone is not acceptable. Do not use shale or stone with shale seams.
 - 2. Existing soils shall be compacted by mechanical means prior to installing swale materials.

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**MONTANA FISH,
WILDLIFE & PARKS**

Lined Swale Details - Cattle Guard
Marias River WMA Road Maintenance

SHEET: 7 of 7